CHAPTER 9A

METAL FRAMING AND FURRING,

LATH AND PLASTER (STUCCO)

9A-01. GENERAL

a. References, you should be familiar with the reference publications for materials. Most are ASTM*s, American Society for Testing and Materials, and their contents must be checked to determine approval and usage of materials. Needed references for installation include the following American National Standards Institute (ANSI) publications:

A42.l Gypsum Plastering
A42.2 Portland Cement Plastering (Stucco)
A42.3 Lathing and Furring for Portland Cement Plaster (Stucco)
A42.4 Interior Lathing and Furring

b. Framing and Furring. Steel framing includes formed (18 gage) and truss type studs for walls and 1-1/2 inch channels for ceilings. Furring is 3/4 inch channels or 18 gage hat shaped channels for walls and ceilings. Information is provided on both the restrained and the unrestrained type ceilings.

c. Lathing. Both metal and gypsum lath are included. Metal lath is expanded, welded or woven; gypsum lath is solidor perforated type. Perforated gypsum lath cannot be used on ceilings.

d. Plastering. There are many gypsum and portland cement plaster materials included herein. The mix ingredients and proportions, number of coats and type substrate are major factors in plastering. Portland cement plaster is not applied to gypsum lath.

e. Stucco. A portland cement, sand and lime mix used in exterior work. The ANSI A42.2 and A42.3 sections on proportioning and mixing and on application and curing must be reviewed.

f. Veneer Plaster. A hard, plaster finish provided over gypsum wallboard (GWB). A thin layer of specially formulated gypsum plaster is applied over GWB manufactured with an absorption face paper for bonding. Reinforcing mesh tape is applied over the joints in the installed GWB.

9A-02. SUBMITTALS

a. Samples. Check for samples required. They usually include a section of each type of lath and accessory, such as casing and corner beads. A stucco panel showing the finish texture and color should be required.

b. Shop Drawing. Installation drawings for ceiling framing and details of the additional supports at ceiling and wall openings are usually required. Drawings for stucco work should include all details and information on mix proportions and thickness of coats.

c. Certification. Required for bonding compound, in the form of a certified test report complying with provisions in MIL-B-19235, as modified in the MATERIALS section of the project specification.

d. Material List. A complete list of all materials and the intended use, specifically located, is required.

9A-03. MATERIALS

Ferrous steel items are either shop coated with protective paint or galvanized. Stainless steel tie wire may be required in ceiling framing. Most stucco accessories will be either zinc or rigid vinyl. Check stucco materials under Paragraph: Stucco.

a. Ceiling Framing and Furring.

(1) Hangers use 8 gage galvanized steel wire or steel strap.

(2) Framing is usually 1-1/2 inch steel channel.

(3) Furring is either 3/4 inch steel channel or 25 gage hat-shaped sheet—metal channel.

(4) Tie wire is 16 gage. Stainless steel wire may be required.

b. Wall Framing and Furring.

(1) Studs may be either 18 gage, sheet-metal type or the truss type formed with 7 gage wire. Stud width is shown on the drawings.

(2) Furring is usually 3/4 inch channel or 25 gage hat-shaped sheet-metal channel.

(3) Furring brackets for attachment to concrete or masonry are 20 gage with a serrated edge for anchoring tie wire used to attach furring members.

(4) Runners are 24 gage for attaching studs and furring to floors and ceilings.

(5) Tie wire is 18 gage and clips used instead of tie wire must be 8 gage. Stainless steel tie wire may be required.

c. Lath.

(1) Metal lath is either expanded type, cut and expanded from steel sheets, or made with welded or woven wire. Lath made from wire must have an integral paper backing to help hold the plaster until it sets.

(2) Gypsum lath is usually 16 by 48 inches and ½ inch thick for use on framing or furring. Larger sections, available for solid type partitions, extend from floor to ceiling height. Gypsum lath can be supplied perforated for use only in walls.

(3) The options for type of lath and weight (for metal) or thickness (for gypsum) depends on the spacing of the framing or furring to which the lath is directly attached.

d. Plaster.

(1) Gypsum - basecoats - are prepared with bagged and labeled gypsum mixed with aggregates in the proportions given in the specifications. Sand or a light weight aggregate, either perlite or vermiculite, may be used. Check for required type aggregate in fire-rated partitions and ceilings. Check for special gypsum for plaster applied by machine method.

(2) Gypsum - finish coat - use one of the following types:

Lime putty made from special finishing hydrated lime and gypsum gaging plaster.

Ready mix gypsum finishing plaster.

High strength gypsum special gaging plaster and lime for a hard, high strength finish.

Keene*s cement for a hard-finish uses 1/4 part hydrated lime to one part Keenes by weight.

(3) Portland cement plaster is proportioned as specified using portland cement, sand and lime.

e. Accessories.

(1) The various items must be checked with the approved sample for thickness or gage, flange width and configuration.

(2) All steel items are galvanized except that cornerite and strip lath may be given a protective paint coating at the factory in lieu of galvanized finish.

f. Stucco.

(1) Lath reinforcement is usually welded or woven wire placed on wood or metal framing. Waterproof paper is required either integral with the lath or by separate application. Separate paper application requires separately applied wirebacking. Lath should be spaced at least 1/4 inch out from supports for embedment.

(2) Stucco mix includes portland cement and sand with not more than 10 percent special finishing lime, by weight of cement, added as the plasticizing agent.

(3) Stucco finish coat with integral color will require a mill mix material to which only water is added at the jobsite.

(4) Accessories, except for cornerite and striplath, shall be either zinc or rigid vinyl.

g. Veneer Plaster. A mill mixed gypsum plaster formulated for veneer plaster use over GWB.

9A-04. STORAGE

a. Labeled materials will be checked for compliance with the specifications upon delivery. Material not in compliance or unidentified will be rejected.

b. Containers will be sealed.

c. Store materials in a dry and protected location to prevent dampness and deterioration.

d. Shade gypsum lath and veneer plaster base from direct sunlight. Sunlight will deteriorate the absorptive paper face.

9A-05 PREPARATION

a. For Framing and Furring.

(1) Is ceiling to be suspended from the structure or directly attached?

(2) Is furring required for direct attachment? How will furring be plumbed?

(3) How will suspended ceiling be leveled? By water tube? By instrument?

(4) Is wall framing long enough or high enough to require horizontal stiffeners?

(5) Does layout provide for extra framing and furring at control joints?

(6) Check the framing details for openings.

b. For Lathing.

(1) Is lath material proper design and weight for the spacing interval of framing or furring?

(2) Is metal lath application on walls set for required top to bottom laydown?

(3) Is gypsum lath application planned for staggered joint in alternate courses?

(4) Is stainless steel tie wire required? Is it available?

(5) Will self—furring metal lath be used over solid substrate?

c. For Plastering and Stucco.

(1) Has lath and accessories been checked for secure fastening?

(2) Are accessory grounds and screeds set to give required plaster thickness?

(3) For direct application are the concrete and masonry surfaces clean and bondable? Are control joint beads set and secured over control joints in the concrete and masonry?

(4) Check plaster mixing equipment, batching method and cleaning procedures.

(5) Is temperature at least 55 degrees F and will ventilation be adequate for drying plaster?

(6) Are required heating devices placed to exclude direct heat on plastered surfaces? Fans and baffles may be required.

(7) Portland cement plaster must be damp cured. Is the planned curing method satisfactory?

(8) Are all building openings closed?

d. For Openings.

(1) Are the required extra supports and framing installed at ceiling openings such as for recessed light fixtures and access panels?

(2) Are the metal door frames back-plastered? In lieu of back- plastering, column clips will be used to tie the double studs together. See OPENINGS paragraph of the specifications.

(3) Is striplath required at corners of openings to reinforce against plaster corner cracking?

e. For Testing.

(1) Are accurate thermometers available?

(2) Stainless steel tie wire and zinc accessories for stucco should be non-magnetic. Is a magnet available for testing?

(3) Measure the depth of grounds and screeds from face of lath to determine plaster thickness. Will it be the specified thickness?

(4) Is a slump cone available to test machine applied plaster? The slump of plaster is limited to between 2-1/2 and 3 inches when tested in a 6 inch high plaster slump cone.

9A-06. INSTALLATION AND APPLICATION

a. Ceiling Framing and Furring

(1) Check hanger wire or strap spacing. Must be 42 inches in each direction or a combination of 48 and 36 inches, the 48 inches being along the framing (runner) channel.

(2) Hangers must be plumb. Hangers at the perimeter must be within 6 inches of walls.

(3) Check for runner and furring channel clearance at walls of unrestrained ceilings.

(4) Check channels for specified splice interlock and lap. Splice location shall be staggered in adjacent members. Take two wire loops with each splice tie.

(5) Are saddle ties correctly made?

(6) Finish each tie with three loops or three twists, as appropriate.

(7) Check wire tieing procedure; wire ends must be flattened so they will not protrude near or through plaster surface.

b. Wall Framing and Furring

(1) Check Chapter 6A, CARPENTRY, for wood framing checklist.

(2) Check floor and ceiling runner anchorage. Runners shall be attached to furring members of continuous ceilings.

(3) Require specified number of fasteners at runner-stud connections.

(4) Check for additional studs at each side of doorways and at corners and intersecting walls.

(5) Wall stiffeners are provided with the 3/4 inch channel or the 1-1/2 inch channel, installed horizontally within the stud space. Check your specifications for location of these stiffeners.

(6) Check furred walls for:

direction; horizontal or vertical furring
furring bracket locations
furring brackets anchorage
fastening furring to brackets
floor and ceiling runner attachment

(7) Check the specifications for farming requirements for solid plaster partitions.

(8) Is a separate furring or framing member installed on each side of control joint beads?

c. Lathing.

(1) Type lath selected shall be compatible with the interval of spacing of the framing or furring to which the lath is directly attached.

(2) Attach lath with long edge across supports.

(3) Fasten metal lath at 6-inch intervals at supports and 9-inch intervals at laps. Fasten gypsum lath at 5-inch intervals.

(4) Lap width depends on type metal lath used. Check your specifications for lap width.

(5) Make end laps of metal lath at supports.

(6) Lath on unrestrained ceilings shall terminate in casing beads. Do not attach casing bead to the wall.

(7) Metal lath at restrained ceilings shall turn down at least 6 inches on walls or cornerite shall be used.

(8) Check for cornerite on gypsum lath at the ceiling-wall intersection of restrained ceilings.

(9) Metal lath on walls shall be applied from top of wall so that lower course laps upper course except paper backed lath is installed bottom to top of wall.

(10) Check for metal lath orientation for maximum mechanical bond. Expanded metal lath on walls shall feel rough when wiped from top to bottom of wall.

(11) Turn lath through corners for 6 inches or install cornerite. Attach only to underlying lath.

(12) Check for strip-lath, oriented diagonally, at each corner of openings. Attach only to underlying lath.

(13) Cut lath at control joints. Control joint will bridge lath opening with each wing attached to cut end of lath.

d. Openings.

(1) Check for strip-lath at the corners of openings which are 12 inches or greater in any dimension.

(2) Fasten strip-lath diagonally to plaster base Without fastening to framing or furring.

(3) Openings shall be framed with finish frames and plaster stops or with casing beads.

(4) Check for additional hanger, framing and furring supports for ceiling openings. Check the approved shop drawing for details.

(5) Hollow steel frames in walls require back-plastering. Form grooves in this plaster to receive installed lath.

(6) A substitute for back-plastering is tieing each set of double studs together with at least 4 sets of column clips. Fasten frame securely to double stud sets.

(7) Check for the runner channel section used as a header at the top of openings. Turn runner ends to member into jamb studs.

(8) Don*t forget the channel stiffener embedded in the wall, above the head of each opening.

(9) Check for a separate knee brace extending from each jamb studs are not anchored to structural supports.

e. Accessories.

(1) Check accessories for alignment, either level or plumb.

(2) Check beads, screeds, grounds and frames for required depth to develop the specified thickness of plaster.

(3) Fasten accessories at 12-inch intervals to the plaster base.

(4) Corner joints to exposed items shall be mitered. Butt joints shall be joined with splice plates.

(5) Each corner bead shall be installed as a one-piece unit. Is the bull-nose bead required? Is a built-in corner guard required?

(6) Use the casing bead to separate plaster at abutting dissimilar materials; also at the perimeter of restrained ceilings.

(7) Check the detail for correct application of control joint bead. Lath is cut to enable the joint to work and prevent nearby cracking.

f. Gypsum Base Coats.

(1) Accurate proportioning by volume is required. Check the table in the specifications.

(2) Check water content of machine applied plaster with a slump test.

(3) Will there be two or three separate coats (including the finish coat)? Three coats are required on metal lath.

(4) Each base coat is approximately 1/4 inch thick. The single coat in two-coat plaster (including the finish coat) is 1/8 inch in the same operation to increase base coat thickness to 3/8 inch.

(5) Check for bond with a solid base such as smooth finish concrete. A bonding compound application may be required.

(6) Check the specifications for plaster application sequence in solid partitions.

g. Gypsum Finish Coat.

(1) Finish coat mix proportions are given by weight.

(2) Check for required finish coat material given in the finish schedule on the drawings.

(3) If regular gypsum finish is indicated either lime-putty or prepared gypsum may be used, except that prepared gypsum finish can not be used over lightweight (perlite or vermiculite aggregated) base coats.

(4) Check the specifications or Keen*s—cement finish proportions and mixing sequence.

(5) The special, high strength gypsum finish must be checked at the mixer location. It is extremely difficult to determine high strength finish in place.

(6) Do not apply high strength gypsum or Keen*s-cement over lightweight aggregate base coats.

(7) Dampen the base coat surface immediately before applying the finish coat.

(8) Normal tolerance in finish surface is 1/16 inch in ten feet. This is reflected in adequate screed control and workmanship in troweling the finish coat to true, smooth surfaces.

(9) Finish coat thickness is:

MINIMUM 1/16 inch
MAXIMUM 1/8 inch

h. Portland Cement Plaster.

(1) Do use Portland cement plaster over gypsum plaster or over gypsum lath.

(2) Check for curing set-up before plastering begins. It is important that all coats be moist cured to control shrinkage.

(3) Check for a requirement for groove joints on approximately 4-foot centers through the finish coat to control shrinkage crackling.

(4) The foregoing groove joints will be in addition to normal control joint spacing on not mere than 12-foot centers.

i. Stucco.

(1) Stucco is Portland cement plaster mix applied to the exterior of building walls.

(2) Check screeds, grounds and frames to produce 7/8-inch thick stucco measured from face of lath.

(3) Check planned sequence of operation for continuous application to natural break lines such as openings, corners and control joints.

(4) Dampen masonry and concrete surfaces immediately before applying stucco.

(5) Check during provisions before stucco application begins. Continuous moist curing is most important.

(6) Finish coat must also be shaded from direct rays of the sun while curing.

(7) Remember that stucco accessories such as casing beads, corner beads, control joints and base screeds must be zinc or rigid vinyl material. Where these items are specified in galvanized steel, check with your supervisor for a change.

(8) Check finish texture and color for a match with the approved sample panel.

j. Veneer Plaster.

(1) Plaster base is the same size and shape as gypsum wallboard. This board has an absorption face paper for bonding the veneer plaster coats.

(2) Check the specifications for the one or the two—coat system.

(3) Cover all joints with mesh reinforcing tape. Do not overlap tape at joint intersections. Fasten tape with staples; see the system manufacturer*s instructions.

(4) A pretreatment at joints may be required before full surface application of plaster. Check manufacturer*s instructions.

(5) Plastering requirements are generally the same as regular plaster, however, temperature and ventilation requirements must be closely monitored. Veneer plaster is more sensitive to drafts and sudden changes in temperature.

(6) Check veneer plaster for thickness between 1/16 and 3/32 inch.